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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,966	09/29/2006	Nikolai Mykola Ignatyev	MERCK-3234	5659
23599 7590 09/15/2008 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			EXAMINER LOEWE, SUN JAE Y	
			ART UNIT 1626	PAPER NUMBER
			MAIL DATE 09/15/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,966	<b>Applicant(s)</b> IGNATYEV ET AL.	
	<b>Examiner</b> SUN JAE Y. LOEWE	<b>Art Unit</b> 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3,7-12 and 14-17 is/are pending in the application.
- 4a) Of the above claim(s) 9-12 and 14-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5-27-2008</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1, 3, 7-12 and 14-17 are pending in the instant application. Claims 9, 12 and 14-17 remain withdrawn as being drawn to non-elected subject matter. Claims 10 and 11 are herein withdrawn as being drawn to non-elected subject matter.

### ***Response to Amendment***

Note: Section numbers referenced below refer to those from the office action dated February 26, 2008.

2. The amendments to the claims and specification filed on May 27, 2008 have been fully considered. The following grounds of objection have been obviated and are hereby withdrawn: a) objection to the specification (Section 7); b) objection to claims 10 and 11 for being dependent on a base rejected claim (Section 9).

3. The amendments and remarks filed on May 27, 2008 do not overcome the following grounds of objection/rejection: a) objection to the claims for containing non-elected subject matter (Section 8); b) 35 USC 103 rejection (Section 10).

### ***Election of Species***

4. Applicants elected of the compound of N-Methyl-N-butylpyrrolidinium pentafluoroethyltrifluoroborate. Claims 10 and 11 were inadvertently not withdrawn in the previous office action. It is noted that the subject matter of claims 10 and 11 do not encompass the "compound of N-Methyl-N-butylpyrrolidinium pentafluoroethyltrifluoroborate." Rather, the claims are drawn to mixtures of the claimed compound with at least one other ionic liquid consisting of a different patentably distinct

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anion. Therefore, claims 10 and 11 are herein withdrawn as being drawn to non-elected subject matter.

***Information Disclosure Statement***

5. The information disclosure statement (IDS) submitted on May 27, 2008 was in compliance with the provisions of 37 CFR 1.97 and 37 CFR 1.98. The IDS was considered. A signed copy of form 1449 is enclosed herewith.

***Maintained Claim Objections***

6. Claims 1-3, 7-8, 10 and 11 remain objected to for containing non-elected subject matter.

Prosecution is currently limited to the elected species of N-Methyl-N-butylpyrrolidinium pentafluoroethyltrifluoroborate (ie. elected subject matter). All other species within the scope of the claims (as well as claims 10 and 11) are considered non-elected subject matter. Pursuant MPEP 803.02, Applicant will be entitled to rejoinder and consideration of the non-elected species upon allowability of the generic claims.

***Maintained Claim Rejections - 35 USC § 103***

7. Below are responses to Applicant's remarks:

- a) “  
In fact, in the absence of a close structural similarity, no presumption of prima facie obviousness can exist.”

The response has been noted, however, it is not found to be persuasive. Applicant is respectfully referred to MPEP 2144-2144.09, which provide guidelines for supporting a rejection under 35 USC 103. "Close structural similarity" is only one of many rationales provided for supporting an obviousness rejection.

- b) “  
Moreover, MacFarlane merely compares imidazolium dicyanamides and pyrrolidinium dicyanamides with respect to their viscosity.

.....

This comparison provides no motivation for one of ordinary skill in the art to substitute imidazolium with pyrrolidinium compounds in the primary reference.

.....

One of ordinary skill in the art has absolutely no basis to predict whether the diverse compounds would retain desirable properties, or lose them, with a significant structural modification to the cation.”

The response has been noted, however, it is not found to be persuasive. It is maintained that, for the reasons provided in the previous office action,

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it would be prima facie obvious to make the instant elected species. Imidazolium and pyrrolidinium are art recognized cations used for the preparation of ionic liquids. Zhou et al. teach the pairing of imidazolium cation with pentafluoroethyltrifluoroborate anion. Although Zhou et al. do not teach pairing pyrrolidinium with pentafluoroethyltrifluoroborate anion, one of ordinary skill would be motivated from this disclosure to pair other cations within their technical grasp (eg. pyrrolidinium) for the purpose of making additional ionic liquids. One of ordinary skill would have a reasonable expectation of success in making an ionic liquid.

- c) “such a significant change as above, the presently claimed compounds, in fact, possess unexpectedly advantageous properties, which clearly eliminate any prima facie case of obviousness. It was clearly not predictable that the electrochemical window of pyrrolidinium pentafluoroethyltrifluoroborate (-3 to +4 as seen from Fig 1 of the present application) would be larger than the disclosed electrochemical window of 1-ethyl-3-methylimidazolium pentafluoroethyl trifluoroborate (-2.5 to +2.8; Fig. 4 of Zhou et al., page 474).”

The difference provided by the Applicant does not appear to be statistically significant to support a showing of “unexpected results.”

For the reasons provided above, the 35 USC 103 rejection of claims 1-3 and 6-8 is maintained and hereby made FINAL.

### *Conclusion*

8. No claims allowed.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUN JAE Y. LOEWE whose telephone number is (571)272-9074. The examiner can normally be reached on M-F 7:30-5:00 Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sun Jae Y. Loewe, Ph.D./  
8-11-2008

/Kamal A Saeed, Ph.D./  
Primary Examiner, Art Unit 1626